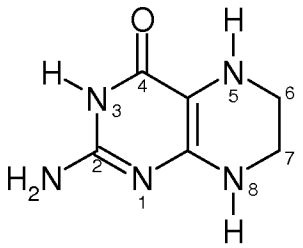
The listing of claims will replace all prior versions, and listings, of claims in the application:

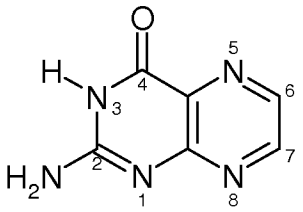
Listing of Claims:

1. (Previously Presented) A process for preparing tetrahydropterin of the following formula



or a tetrahydropterin compound of said tetrahydropterin that is substituted at the 6-, or 7- or 6- and 7- position or positions,

comprising hydrogenating pterin of the following formula



or a pterin compound of said pterin that is monosubstituted at the 6-, or 7- or 6- and 7- position or positions,

with hydrogen in a polar reaction medium in the presence of a hydrogenation catalyst that is a metal complex that is soluble in the reaction medium, wherein the catalyst contains a ligand which is (i) triarylphosphine, (ii) tetramethylene phenylphosphine (iii) pentamethylene phenylphosphine, or (iv) a bidentate ligand with a tertiary amine group and a phosphine group or with two tertiary phosphine groups as complexing groups, wherein the bidentate ligands form together with a metal atom a five- to ten membered ring.

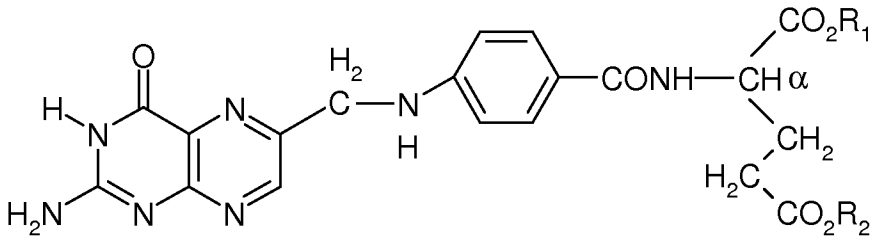
2. (Previously Presented) A process according to claim 1, wherein the polar reaction medium is an aqueous or alcoholic reaction medium.

3. (Previously Presented) A process according to claim 1, wherein the pterin compound is folic acid, a folic acid salt, a folic acid ester, a folic acid ester salt or a dihydro form thereof, with the proviso that in the event of using folic acid, a carboxylic acid thereof or a dihydro form thereof, the reaction medium is aqueous, and in the event of using a folic acid ester, a folic acid ester salt or a dihydro form thereof, the reaction medium is an alcohol.

4. (Previously Presented) A process according to claim 1, wherein the metal complex contains a chiral ligand.

5. (Previously Presented) A process according to claim 3, wherein the metal complex contains a chiral ligand.

6. (Previously Presented) A process according to claim 5, wherein the folic acid ester salt is of formula III and is in the form of a single enantiomer or a mixture of enantiomers of formula III,



x HA (III),

in which

one of R_1 or R_2 is H, and the other one of R_1 or R_2 is a monovalent hydrocarbon radical or a hydrocarbon radical attached via a carbon atom in which one or more carbon atoms are each independently replaced by oxygen, sulfur, NH, -N=, or -N(C_1-C_4 Alkyl)-, or

both R_1 and R_2 independently of one another represent a monovalent hydrocarbon radical or a hydrocarbon radical attached via a carbon atom in which one or more carbon atoms are each independently replaced by oxygen, sulfur, NH, -N=, or -N(C_1-C_4 Alkyl)-,

HA stands for a monobasic to tribasic inorganic or organic acid, and

x denotes an integer from 1 to 6 or a fractional number between 0 and 6.

7. (Previously Presented) A process according to claim 6, wherein HA is unsubstituted or substituted phenylsulphonic acid.

8. (Previously Presented) A process according to claim 1, wherein said process is carried out at a hydrogen pressure of 1 to 500 bars.

9. (Previously Presented) A process according to claim 1, wherein said process is carried out at a temperature is 0 to 150^0 C.

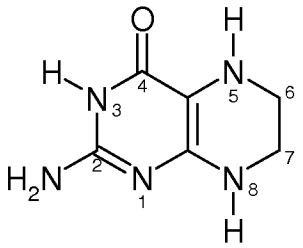
10. (Previously Presented) A process according to claim 1, wherein the molar ratio of pterin or pterin compound to catalyst is 10 to 100,000.

11. (Previously Presented) A process according to claim 1, wherein the reaction medium is water or water in admixture with an organic solvent.

12. (Previously Presented) A process according to claim 2, wherein the alcoholic reaction medium is an alcohol, or an alcohol in admixture with an organic solvent.

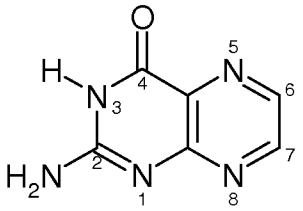
13. (Previously Presented) A process according to claim 1, wherein the metal complex contains a d-8 metal.

14. (Previously Presented) A process for preparing tetrahydropterin of the following formula



or a tetrahydropterin compound of said tetrahydropterin that is substituted at the 6-, or 7- or 6- and 7- position or positions,

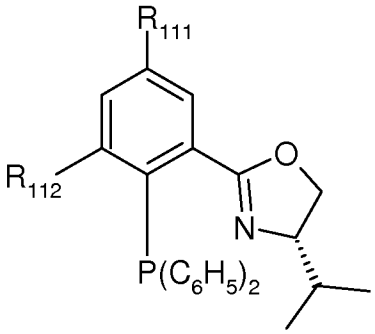
comprising hydrogenating pterin of the following formula

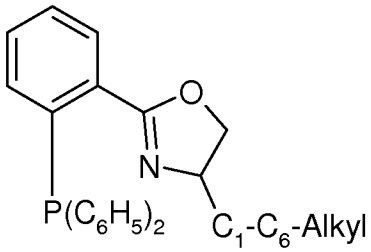


or a pterin compound of said pterin that is monosubstituted at the 6-, or 7- or 6- and 7- position or positions,

with hydrogen in a polar reaction medium in the presence of a hydrogenation catalyst that is a metal complex that is soluble in the reaction medium, wherein the catalyst has a ligand that is an achiral or chiral ditertiary diphosphine

or a compound of the following formulae





wherein R_{111} and R_{112} are each independently H or methyl,

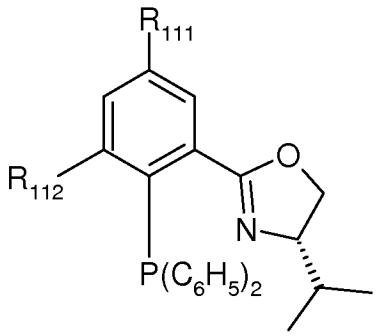
wherein

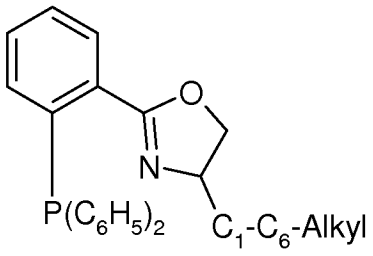
a) the reaction medium is an alcoholic reaction medium, and wherein in the diphosphine the phosphine groups are attached (a) to various carbon atoms of a hydrocarbon chain having 2 to 4 carbon atoms, or (b) directly or via a bridging group $-CR_aR_b-$ in the ortho

positions of a cyclopentadienyl ring or to a cyclopentadienyl ring of a ferrocenyl, wherein R_a and R_b are the same or different and stand for H, C_1-C_8 alkyl, C_1-C_4 fluroalkyl, C_5-C_6 cycloalkyl, phenyl, benzyl, or phenyl or benzyl substituted with 1 to 3 C_1-C_4 alkyl or C_1-C_4 alkoxy,

or

b) the catalyst has a ligand that is a compound of one of the the following formulae



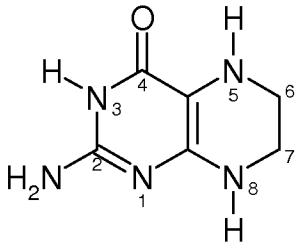


wherein R_{111} and R_{112} are each independently H or methyl.

15. (Previously Presented) A process according to claim 14, wherein the reaction medium is an alcoholic reaction medium, and wherein in the diphosphine the phosphine groups are attached (a) to various carbon atoms of a hydrocarbon chain having 2 to 4 carbon atoms, or (b) directly or via a bridging group $-CR_aR_b-$ in the ortho positions of a cyclopentadienyl ring or to a cyclopentadienyl ring of a ferrocenyl, wherein R_a and R_b are the same or different and stand for H, C_1-C_8 alkyl, C_1-C_4 fluroalkyl, C_5-C_6 cycloalkyl, phenyl, benzyl, or phenyl or benzyl substituted with 1 to 3 C_1-C_4 alkyl or C_1-C_4 alkoxy.

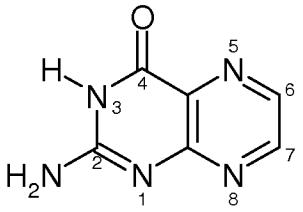
16-28. (Cancelled)

29. (Previously Presented) A process for preparing tetrahydropterin of the following formula



or a tetrahydropterin compound of said tetrahydropterin that is substituted at the 6-, or 7- or 6- and 7- position or positions,

comprising hydrogenating pterin of the following formula

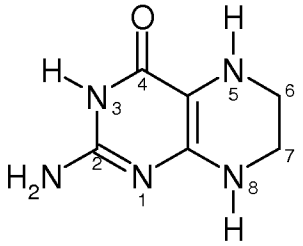


or a pterin compound of said pterin that is monosubstituted at the 6-, or 7- or 6- and 7- position or positions,

with hydrogen in alcohol or in alcohol in admixture with an organic solvent in the presence of a hydrogenation catalyst that is a metal complex that is soluble in the reaction medium.

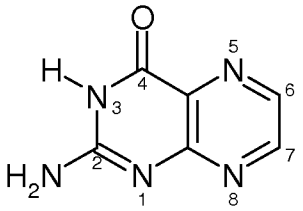
30. (Cancelled)

31. (Previously Presented) A process for preparing tetrahydropterin of the following formula



or a tetrahydropterin compound of said tetrahydropterin that is substituted at the 6-, or 7- or 6- and 7- position or positions,

comprising hydrogenating pterin of the following formula



or a pterin compound of said pterin that is monosubstituted at the 6-, or 7- or 6- and 7- position or positions,

with hydrogen in an alcoholic reaction medium in the presence of a hydrogenation catalyst-that is a metal complex that is soluble in the reaction medium and contains an achiral or chiral ditertiary diphosphine that is attached (a) to various carbon atoms of a hydrocarbon chain having 2 to 4 carbon atoms, or (b) directly or via a bridging group $-CR_aR_b-$ in the ortho positions of a cyclopentadienyl ring or to a cyclopentadienyl ring of a ferrocenyl, wherein R_a and R_b are the same or different and stand for H, C_1-C_8 alkyl, C_1-C_4 fluroalkyl, C_5-C_6 cycloalkyl, phenyl, benzyl, or phenyl or benzyl substituted with 1 to 3 C_1-C_4 alkyl or C_1-C_4 alkoxy.

32. (Cancelled)

33. (Previously Presented) A process according to claim 3, wherein the hydrogenation is carried out at elevated pressure.

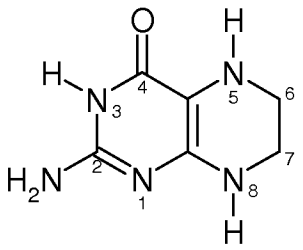
34. (Previously Presented) A process according to claim 1, wherein the metal complex contains iridium, rhodium or ruthenium.

35-36. (Cancelled)

37. (Previously Presented) A process according to claim 31, wherein R_a and R_b are the same or different and stand for H, C_1-C_8 alkyl, C_1-C_4 fluroalkyl, C_5-C_6 cycloalkyl, benzyl, or phenyl.

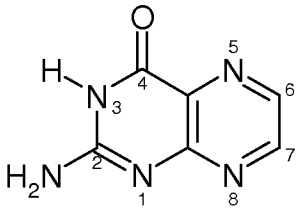
38-39. (Cancelled)

40. (Previously Presented) A process for preparing tetrahydropterin of the following formula



or a tetrahydropterin compound of said tetrahydropterin that is substituted at the 6-, or 7- or 6- and 7- position or positions,

comprising hydrogenating pterin of the following formula



or a pterin compound of said pterin that is monosubstituted at the 6-, or 7- or 6- and 7- position or positions,

with hydrogen in alcohol or in alcohol in admixture with an organic solvent in the presence of a hydrogenation catalyst that is a metal complex that is soluble in the reaction medium, wherein the pterin compound is folic acid, a folic acid salt, a folic acid ester, a folic acid ester salt or a dihydro form thereof, with the proviso that in the event of using folic acid, a carboxylic acid thereof or a dihydro form thereof, the reaction medium is aqueous, and in the event of using a folic acid ester, a folic acid ester salt or a dihydro form thereof, the reaction medium is an alcohol.

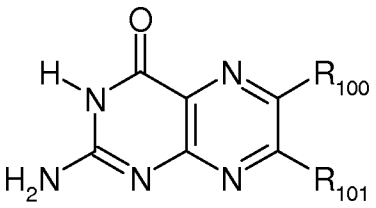
41. (Cancelled)

42. (Previously Presented) A process according to claim 31, wherein the pterin compound is folic acid, a folic acid salt, a folic acid ester, a folic acid ester salt or a dihydro form thereof, with the proviso that in the event of using folic acid, a carboxylic acid thereof or a dihydro form thereof, the reaction medium is aqueous, and in the event of using a folic acid ester, a folic acid ester salt or a dihydro form thereof, the reaction medium is an alcohol.

43-44. (Cancelled)

45. (Previously Presented) A process according to claim 1, wherein the pterin compound is a pterin that is substituted in the 6- and/or 7- positions.

46. (Previously Presented) A process according to claim 1, wherein the pterin compound is of formula (A)



(A)

in which

R_{101} is H or independently has the meaning of R_{100},

R_{100} is an organic radical attached via a C, O or N atom and having 1 to 50 carbon atoms,

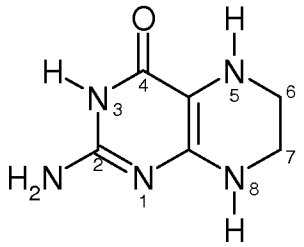
M_{100} is Li, K, Na, NH_4^+, or ammonium with 1 to 16 carbon atoms,

R_{102} is C_1-C_8-alkyl, C_5- or C_6-cycloalkyl, phenyl or benzyl, and

R_{103} is C_1-C_4-alkyl, phenyl or benzyl.

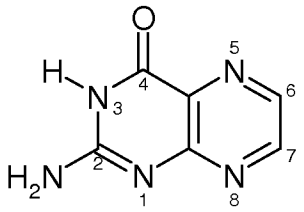
47. (Previously Presented) A process according to claim 46, wherein R_{100} is not interrupted or is interrupted by one or more of -O-, -NH-, -N(C_1-C_4-alkyl)-, -C(O)-, -C(O)O-, -OC(O)-, -OC(O)O-, -C(O)NH-, -NHC(O)-, -NHC(O)O-, -OC(O)NH-, -NHC(O)NH-, -C(O)N(C_1-C_4-alkyl)-, -N(C_1-C_4-alkyl)C(O)-, -N(C_1-C_4-alkyl)C(O)O-, -OC(O)N(C_1-C_4-alkyl)-, -N(C_1-C_4-alkyl)C(O)N(C_1-C_4-alkyl)-, and which is unsubstituted or is substituted with F, Cl, Br, -CN, -OCN, -NCO, -OH, $-NH_2$, -NHC_1-C_4-alkyl, -N(C_1-C_4-alkyl)$_2$, C_1-C_4-alkyl, C_1-C_4-haloalkyl, C_1-C_4-hydroxyalkyl, C_1-C_4-alkoxy, C_1-C_4-haloalkoxy, -C(O)OH, -C(O)OM_{100}, -C(O)OC_1-C_4-alkyl, $-C(O)NH_2$, -C(O)NHC_1-C_4-alkyl, -C(O)N(C_1-C_4-alkyl)$_2$, R_{102}-C(O)O-, R_{102}-OC(O)O-, R_{102}-C(O)NH-, R_{102}-C(O)N(C_1-C_4-alkyl)-, R_{102}-NHC(O)NH-, R_{103}C(O)- or -CH(O).

48. (Currently Amended) ~~A process according to claim 19, wherein~~ A process for preparing tetrahydropterin of the following formula



or a tetrahydropterin compound of said tetrahydropterin that is substituted at the 6-, or 7- or 6- and 7- position or positions,

comprising hydrogenating pterin of the following formula



or a pterin compound of said pterin that is monosubstituted at the 6-, or 7- or 6- and 7- position or positions,

with hydrogen in a polar reaction medium in the presence of a hydrogenation catalyst that is a metal complex that is soluble in the reaction medium of formula XLIV, XLIVa or XLIVb,

$[X_7Me_2YZ]$ (XLIV), $[X_7Me_2Y]^+A_2^-$ (XLIVa) $[X_7Ru(II)X_8X_9]$(XLIVb),

in which

Y stands for monoolefin ligands or a diene ligand;

X_7 represents an achiral or chiral ditertiary diphosphine, that forms a 5 to 7 membered ring with the metal atom Me_2 or Ru;

Me_2 denotes Ir(I) or Rh(I);

Z represents –Cl, -Br, or –I; and

A_2 is ClO_4^-, $CF_3SO_3^-$, $CH_3SO_3^-$, HSO_4^-, BF_4^-, $B(Phenyl)_4^-$, PF_6^-, $SbCl_6^-$, AsF_6^- or SbF_6^-;

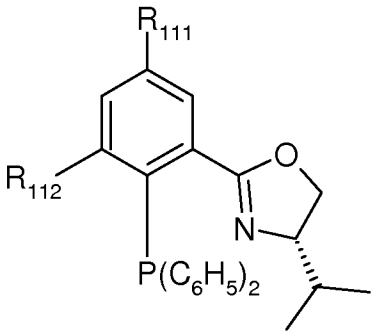
X_8 and X_9 are the same or different and have the meaning of Z or A_2, or X_8 has the meaning of Z or A_2 and X_9 stands for hydride.

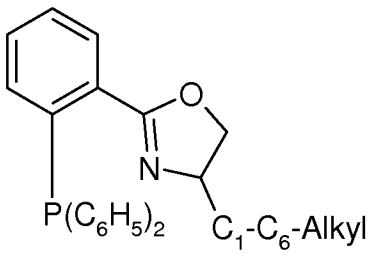
49. (Previously Presented) A process according to claim 6, wherein R_1 and/or R_2 are, each independently,

pyrrolidinyl, piperidinyl, morpholinyl, tetrahydropyranyl, piperazinyl, pyrrolidinyl methyl, pyrrolidinyl ethyl, piperidinyl methyl, piperidinyl ethyl, morpholinyl methyl, morpholinyl ethyl, tetrahydropyranyl methyl, tetrahydropyranyl ethyl, piperazinyl methyl or piperazinyl ethyl.

50. (Cancelled)

51. (Previously Presented) A process according to claim 14, wherein the catalyst has a ligand that is a compound of one of the the following formulae





wherein R_{111} and R_{112} are each independently H or methyl.